CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

Staff Report for Item No. 17

Tentative Order No. R9-2003-0306

Waste Discharge Requirements for the
Prima Deshecha Landfill
Orange County

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1. INTRODUCTION

The Prima Deshecha Landfill is a municipal solid waste (MSW) landfill (Class III waste management unit). The facility is subject to both State (California Code of Regulations – CCR Title 27) and Federal (Code of Federal Regulations – CFR, Title 40, Part 258) requirements regulating municipal solid waste landfills. In 1993, the State Water Resources Control Board (SWRCB) adopted Resolution No. 93-62 and 93-100. Resolution No. 93-62 requires each Regional Water Board to implement waste discharge requirements (WDRs) for discharges at MSW landfills under both the Chapter 15 (now CCR Title 27 - as of 1997) and those applicable provisions of the federal MSW regulations that are necessary to protect water quality.

On August 16, 1993, the California Regional Water Quality Control Board – San Diego Region adopted General Order 93-86: "*Waste Discharge Requirement Amendment for all MSW Landfills in this Region, to Implement State Water Board Resolution No. 93-62, adopted June 17, 1993,"* as State Policy for Water Quality Control under Section 13140 of the Water Code." This interim measure was taken to ensure that all active MSW landfills would be required to comply with the existing Federal requirements for MSW landfills. As the Regional Board revises WDRs for each active MSW landfill, the existing State and Federal requirements are incorporated into the new Order. The revised WDRs supercede existing requirements for the affected facility pursuant to Order 93-86 and enrollment of each affected facility in Order 93-86 is terminated upon adoption of revised WDRs.

Tentative Order R9-2003-0306 contains both State and Federal MSW landfill requirements as this is the first complete revision of WDRs for the Prima Deshecha Landfill since the adoption of SWRCB Resolution No. 93-62 and the Regional Board's General Order No. 93-86. If adopted, tentative Order R9-2003-0306 will supercede Order No. 89-102 (and addenda thereto) and terminate enrollment of the Prima Deshecha Landfill in Order 93-86 (and addenda thereto).

2. BACKGROUND

Zone 1 of the Prima Deshecha Landfill consists of the following phases: waste management units 1, 2, and phases A, A1 and C1. Waste management units (WMUs) 1 and 2 are unlined phases of the landfill, and these were constructed prior to the promulgation of California Code of Regulations (CCR), Title 27, and the Code of Federal Regulations (CFR) Title 40, Part 258, which require landfill units to be constructed with a liner and a leachate collection and removal system (LCRS).

During the development of Phase A of Zone 1, approximately 1.7 million cubic yards of material was excavated and stockpiled in a 17-acre area located to the south and adjacent to the Prima Deshecha Cañada. In May 1998, after an

unusually heavy rainy season, a landslide developed in area containing the stockpiled soil materials. The resulting landslide, referenced here as "Landslide B", incorporates over 2 million cubic yards of material and extends laterally over 2,500 feet along the Prima Deshecha Cañada.

The County of Orange identified their preferred alternative for the remediation of the landslide including the removal of most of the stockpiled soils and landslide debris, realignment of a portion of he Prima Deshecha Cañada, to the south of its existing location, and the construction of a shear-key and buttress for landslide stabilization.

On November 6, 2001 the County of Orange certified Environmental Impact Report No. 575 for the continued development and expansion of Zone 1, and the remediation of landslide B. The expansion of Zone 1 proposes the development of Phases B, C, and D (see Attachment No. 1), and the realignment of Prima Deshecha Cañada to promote slope stability and the re-establishment of riparian habitat. Subsequently, the County of Orange received the following permits/decisions regarding the proposed creek realignment project: Clean Water Act Section 401 Water Quality Certification (February 21, 2002); Department of Army Permit No. 980065200-E51, Clean Water Act Section 404 Permit (February 14, 2002); U.S. Fish and Wildlife Service Biological Opinion No. 1-6-02-F-703 (February 8, 2002); and the California Department of Fish and Game Section 1601 Stream Alteration Permit (March, 2002). These permits establish the mitigation requirements for the impacts associated with the proposed project to realign the creek.

3. COMPLIANCE WITH FEDERAL REQUIREMENTS

In compliance with General Order 93-86, the following information/report(s) were submitted by the County of Orange to the Regional Board:

A. 100-year Floodplain Report [Order 93-86, § 3]

The 100-year floodplain report indicated that the Prima Deshecha Cañada channel is located in an area designated as being 100-year flood hazard. Drainage control features have been designed to accommodate flows from a 24-hour, 100-year storm event and prevent washout. Since 1993, the lower portion of the Prima Deshecha Cañada has been widened and rerouted as part of landslide mitigation project.

B. Existing Footprint [Order 93-86, § 4]

On November 16, 1993 the County of Orange submitted an aerial photograph documenting the footprint for the Prima Deshecha Landfill. Subsequently, the discharger has continued to update the Regional Board with additional information documenting the developing landfill footprint.

C. Wetlands Report [Order 93-86, § 5]

The Wetlands Report indicated that the Prima Deshecha Landfill footprint contains wetland habitat that supports the least Bell's vireo. As part of the landslide remediation project, the lower portion of the Prima Deshecha Cañada has been modified from its original configuration. In accordance with the Environmental Impact Report (EIR), the County of Orange obtained a 401-certification through the Regional Board, a Section 404 Permit from the U.S. Army Corps of Engineers, a 1601 Streambed Alteration Permit from the California Department of Fish and Game, and a Section 7 Consultation through the U.S. Fish and Wildlife Service. Because the wetland habitat was destroyed during the landslide remediation project, two new wetland areas are to be created and maintained at the top and bottom of the rerouted portion of Prima Deshecha Cañada.

D. Proximity to Drinking Water Intake Report [Order 93-86, § 8(a)(1)]

The report indicated that one groundwater well lies within a one-mile radius of Zone 1, but the well is reportedly abandoned. Also, two reservoirs are located within one-mile of Zone 1. But the first is a concrete-lined reservoir on the ridgeline north of Zone 1, and the second is identified as the "Krum Reservoir" and is a covered municipal water tank.

E. Closure and Post-Closure Maintenance Plan [Order 93-86, § 14]

The County of Orange submitted a preliminary closure and post-closure maintenance plan (PCPCMP) dated October 1992. The submission of the PCPCMP meets the requirement for the closure and post-closure maintenance plan required under federal MSW regulations. An update to the original preliminary closure and post-closure plan was submitted to the Regional Board in the Joint Technical Document (JTD) dated July 2003.

4. LINER SYSTEM DESIGN

According to 40 CFR §258.40, all new and lateral expansions of municipal solid waste landfills must be constructed with a composite liner and leachate collection and removal system (LCRS). The prescriptive composite liner is a system of two major components. The upper component must consist of a minimum 30-mil flexible membrane liner (FML). FML components consisting of a high density polyethylene (HDPE) layer shall be at least 60-mil thick. The second component must consist of a minimum two-foot layer of compacted soil with a hydraulic conductivity no greater than 1×10^{-7} cm/sec.

CCR Title 27 §20080(b) and SWRCB Resolution No. 93-62 allow dischargers to construct engineering alternatives to the prescriptive standard when the following criteria are met:

(A) the construction of the prescriptive standard is not feasible;
(B) the engineered alternative is consistent with the performance goals of the prescriptive standard; and
(C) the engineered alternative provides equivalent protection against water quality impairment.

In their JTD, the County of Orange has proposed and provided supporting documentation for the use of an engineered alternative liner system at the Prima Deshecha Landfill. The engineered alternative liner for the side slopes shall consist of (from bottom to top): an 80-mil geomembrane (textured side down); a 16-ounce geotextile; gravel drains along the benches; and a protective soil cover at a minimum thickness of two feet. The engineered alternative liner used for the bottom of the waste management unit (with gradients less than 5:0) shall be constructed to meet the following design criteria (from bottom to top): a dendritic array of subdrain collection trenches lined with 12-ounce geotextile and filled with gravel; a minimum one-foot thick compacted, low-permeability soil layer with a hydraulic conductivity less than or equal to 1×10^{-6} cm/sec; an 80-mil HDPE geomembrane (textured both sides); a 12-ounce geotextile; a minimum one-foot thick LCRS layer with a redundant dendritic array of collection pipes; an 8-ounce geotextile; and a minimum two-foot thick protective soil cover.

This proposed design meets the performance criteria of a prescriptive (composite) liner system as outlined in CCR Title 27 §20330 and 20340.

5. DISPOSAL OF CONTAMINATED SOILS

Section 25157.8(a) of the California Health and Safety Code prohibits the disposal of waste or soils containing total lead in excess of 350 parts per million (ppm), copper in excess of 2500 ppm, and nickel in excess of 2000 ppm to non-hazardous, Class III waste management units, unless the Regional Board amends waste discharge requirements to specifically allow the disposal of the waste, and the appropriate local enforcement agency (LEA) has revised the solid waste facility permit to specifically allow for the disposal of these materials.

In June, 1999 the Regional Board adopted addendum No. 1 to Order No. 93-86, *"Maximum Concentration Limits for Soils Containing Nonhazardous Concentrations of Petroleum Hydrocarbons, Organic and Inorganic Compounds, Metals, and Pesticides for MSW Landfills with Subtitle D Liners."* This addendum allows for the disposal of lead contaminated soils (<1000 ppm) into landfills with liners and leachate collection and removal systems. The allowance for disposal of contaminated soils up to this concentration is derived from the threshold value for hazardous concentrations established in CCR Title 22. The

threshold concentration is derived from the Toxicity Characteristic Leaching Procedure (TCLP) and the waste extraction test (WET) analyses, which measure the leachability of a particular constituent.

6. STORM WATER DISCHARGES

A. Industrial Storm Water

In 1997, the State Water Resources Control Board (SWRCB) adopted Order No. 97-03-DWQ: **"National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000001 (General Permit), Waste Discharge Requirements (WDRs) for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities."**

Attachment 1 to SWRCB Order 97-03-DWQ specifically defines landfills, land application sites, and open dumps as follows:

"Sites that receive or have received industrial waste from any of the facilities covered by this General Permit, sites subject to regulation under Subtitle D of RCRA, and sites that have accepted wastes from construction activities (construction activities include any clearing, grading, or excavation that results in disturbance of five acres or more)."

Order 97-03-DWQ regulates storm water discharges from industrial facilities, including active landfills.

Further, where operations have discontinued and significant materials remain on site (such as at closed landfills), the landowner may be responsible for filing a Notice of Intent (NOI) and complying with Order 97-03-DWQ. Landowners may also file an NOI for a facility if the landowner, rather than the facility operator, is responsible for compliance with Order 97-03-DWQ. The complete text of the Statewide Industrial Storm Water permit is available on line at the SWRCB web site at:

http://www.swrcb.ca.gov/stormwtr/industrial.html

B. Construction Storm Water

During earthwork and grading operations associated with the construction of new cells and the general landfill operations it is necessary to implement best management practices (BMPs) for erosion control and mitigation of sediment discharges in storm water. During such earthwork and grading operations, landfills are subject to the same types of problems associated with erosion and sediment discharges from large scale construction sites.

Surface water discharges from earthwork and grading, associated with new construction or related to maintenance of existing cells, should comply with the discharge prohibitions and specifications of State Board Order No. 99 - 08 – DWQ, National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000002**, Waste Discharge Requirements (WDRs) for Discharges of Storm Water Runoff Associated with Construction Activity.** The discharger should revise their Storm Water Pollution Prevention Plan (SWPPP), and/or update the SWPPP, as necessary to comply with discharge prohibitions and specifications of SWRCB Order No. 99-08-DWQ.

The complete text of the Statewide Construction Storm Water permit is available on line at the SWRCB web site at:

http://www.swrcb.ca.gov/stormwtr/construction.html

C. Impaired Water Bodies – 303-d List

On July 25, 2003, the USEPA gave final approval to California's 2002 Section 303(d) List of Water Quality Limited Segments. The Prima Deshecha Creek was identified as an impaired water body for phosphorous and turbidity on the 303-d list for the San Diego Region. The final list of impaired water bodies for the San Diego Region may be found on the SWRCB web site at:

http://www.swrcb.ca.gov/tmdl/303d_lists.html

Failure to implement effective BMPs, during landfill operations and construction of new waste management units, for control of erosion and sediment discharges may contribute to elevated turbidity in the Prima Deshecha Creek. In order to control discharges of sediments into the impaired surface waters of Prima Deshecha Creek, it is reasonable ensure that the County of Orange develops and implements effective BMPs for control of erosion and sediment discharges from the Prima Deshecha Landfill. Developing appropriate BMPs should be based upon consideration of discharge prohibitions and specifications and from the Statewide Construction Storm Water permit (State Board Order No. 99 - 08 – DWQ). This is the purpose for including the Construction Storm Water Permit into the findings and discharge specifications of tentative Order R9-2003-0306.

The selected BMPs for effective erosion control and sediment discharges should be incorporated into the Storm Water Pollution Prevention Plan (SWPPP) prepared for the Prima Deshecha Landfill.

D. Potential Municipal Storm Water Impacts

The RWQCB adopted Order No. R9-2002-001: NPDES No. CAS0108740**, "Waste Discharge Requirements for Discharges of Urban Runoff from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds**

of the County of Orange, the Incorporated Cities of Orange County, and the Orange County Flood Control District within the San Diego Region."

Threat to Water Quality Prioritization – Municipal Areas

To establish priorities for oversight of municipal areas and activities required under Order R9-2002-001, each Copermittee shall prioritize each watershed inventory by threat to water quality and update annually. Each municipal area and activity shall be classified as high, medium, or low threat to water quality. In evaluating the threat to water quality, each Copermittee must consider: (1) type of municipal area or activity; (2) materials used; (3) wastes generated; (4) pollutant discharge potential; (5) non-storm water discharges; (6) size of facility or area; (7) proximity to receiving water bodies; (8) sensitivity of receiving water bodies; and (9) any other relevant factors.

At a minimum, the high priority municipal areas and activities shall include the following Municipal Waste Management Facilities:

- Active or closed municipal landfills;
- Incinerators;
- Solid waste transfer facilities;
- Land application sites;
- Uncontrolled sanitary landfills;
- Corporate yards including maintenance and storage yards for materials, waste, equipment and vehicles;
- Sites for disposing and treating sewage sludge; and
- Hazardous waste treatment, disposal, and recovery facilities.

7. SLOPE STABILITY

A. Site Specific Geology

The Zone 1 area of the Prima Deshecha Landfill is underlain by alluvium, and three bedrock formations: the Capistrano Formation, the Monterey Formation, and the San Onofre Breccia. Alluvial sediments are located primarily along the Prima Deshecha Cañada and its tributaries. The Quaternary landslide deposits incorporate surface soils and the Capistrano Formation, and unstable areas are found throughout the site. The Capistrano Formation is a marine sedimentary unit several hundred feet thick, and comprised of thinly bedded to massive siltstone, claystone, and minor sandstone. Bedrock weathering typically extends to a depth of 50 – 100 feet, and is characterized by pervasive gypsum-filled fractures. It is within this formation that the majority of the landslides at the Prima Deshecha Landfill occur.

There are no known Holocene faults located within Zone 1 (CCR Title 27 §20260(d)).

B. Federal Requirements (Unstable Areas)

According to 40 CFR §258.15, dischargers with landfills located in unstable areas must demonstrate that engineering measures have been incorporated into the landfill unit design to ensure the integrity of the structural components of the landfill will not be disrupted. At a minimum, the discharger must consider the following when determining whether an area is unstable:

(1) On-site or local soil conditions that may result in significant differential settling;
(2) On-site or local geologic or geomorphological features; and
(3) On-site or local human-made features or events (both surface or subsurface).

Unstable area means a location that is susceptible to natural or human-induced events or forces capable of impairing the integrity of some or all of the landfill structural components responsible for preventing releases from the landfill.

The rationale supporting the construction of landfill phase B in an unstable area can be found in 7(E), below.

C. State Requirements (Rapid Geologic Change)

CCR Title 27 §20250 states that Class III municipal solid waste landfill can only be located within areas of potential rapid geologic change if the Regional Board finds that the landfill unit's containment structures are designed, constructed, and maintained to preclude containment failure.

D. Landslide Mitigation Project Summary

The design basis for the development of future phases B, C, and D within Zone 1 is the remediation of the stockpile landslide, which includes the realignment of the southern on-site portion of the Prima Deshecha Cañada. The remediation project includes the removal of alluvial and stockpiled materials and the recompaction of soil fill to stabilize the landslide.

The landslide was evaluated using bore-hole data to locate the slide plane and to establish groundwater elevations in conjunction with mapping of the surface expression of the landslide. The stability of the landslide was evaluated using back calculation techniques in order to derive strength parameters for the failed soils/bedrock materials. The discharger deemed

this to be a preferable method of analysis as compared to attempting to collect "representative" soil samples for lab testing. Once the landslide features were evaluated, consultants for the County of Orange proposed a two-fold mitigation plan that included the removal or unloading of the upper slide mass and the construction of an engineered fill support berm (shear-key) keyed into the underlying soil materials. The excavated landslide material was used to construct the berm that is intended to support and stabilize the remaining slide material. The landslide mitigation efforts were followed by the realignment of the Prima Deshecha Cañada into a newly designed/constructed channel (i.e., biomitigation channel). The engineered channel incorporates an area exceeding 6 acres, varies in width from 50 to 100 feet, and is approximately 3,100 feet long. The engineered channel lies adjacent to a 25-foot wide landfill perimeter maintenance road, an improved drainage channel, and a setback for the final cover keyway. The realigned stream channel would be outside the projected areas of future phases of landfill development and operations.

During construction of the engineered channel, the landslide was inadvertently reactivated due to the stockpiling of excavated soils that were placed adjacent to the channel. The excessive rates of short-term loading (stockpiling) of the excavated materials apparently activated a slip surface beneath the "biomitigation channel." The newly constructed channel base was disrupted by a vertical offset of several inches along the slip surface. The result of this movement was the removal of approximately 336,000 cubic yards of soil from the stockpile, relocating the materials to a new, smaller stockpile location. Extraction wells were also installed to extract groundwater to help reduce the excess pore pressure built up in soils underlying the stockpile. In a further effort to stabilize the slopes along the creek bed, a large southwest facing cut slope will be modified to reduce its slope angle to meet the required stability criteria.

E. Waste Management Unit Design and Monitoring

Based on the knowledge and information collected from the consultant for the County of Orange, the Regional Board staff recommends that the further development of Zone 1 (phases B) is a viable option. According to the County of Orange, the realigned creek and proposed design for the next phase of the landfill will be constructed to withstand failure over the long term. The County of Orange has the means and capability to properly evaluate and implement short-term repairs for damage that may be caused by slope failures at the Prima Deshehca Landfill. However, staff is aware of the fact that the Prima Deshecha Landfill is a unique site, and one that is still inherently unstable and subject to slope failures. As a result, the Regional Board staff has included requirements to regularly monitor and report on slope movement and the County will be required to submit

additional slope stability analyses for all future phase developments at the site.

The Regional Board has required slope stability monitoring along the cut slopes and realigned creek in order to detect slope movement which may impact future phases of the Prima Deshecha Landfill. The monitoring system will include inclinometers and permanent survey monuments. Monitoring will be conducted monthly for the first year, and quarterly thereafter, until the Regional Board has determined that the areas in question are stable, and monitoring is no longer necessary.

8. GROUND WATER MONITORING

The California Code of Regulations (CCR) Title 27 and the Code of Federal Regulations (CFR) Title 40 require dischargers of waste management units "units", to implement a groundwater monitoring program. For units that do not have indication of a release, a detection monitoring program (DMP) is an appropriate program for the purpose of detecting, characterizing and responding to a release. The monitoring network for the Prima Deshecha Landfill is comprised of 16 background and monitoring points that monitor both the alluvium and bedrock aquifers that underlie the landfill. The state and federal requirements, though similar in nature, are outlined separately below.

A. State Requirements – Detection Monitoring

CCR Title 27 §20415(a)-(b), and §20420 require the following when implementing a DMP:

- A sufficient number of monitoring points and background monitoring points installed at appropriate locations and depths to yield groundwater samples from the uppermost aquifer that represent the quality of groundwater that has not been affected by a release from the unit.

- A proposed list of monitoring parameters (MPars) for each medium (surface water groundwater and the unsaturated zone) which shall include the physical parameters, hazardous constituents, waste constituents, and reaction products that provide a reliable indication of a release from the Unit, into that medium.

- Routine monitoring (frequency to be determined by the Regional Board) at each monitoring point and background monitoring point, for the MPars listed in the waste discharge requirements (WDRs) for that Unit.

- Periodic (every five years) monitoring of Constituents of Concern (COC), as specified in the WDRs to determine whether there is measurably significant evidence of a release.

B. Federal Requirements – Detection Monitoring

40 CFR Part 258.51 requires the following when implementing a detection monitoring program at a Unit:

- A sufficient number of monitoring points and background monitoring points installed at appropriate locations and depths to yield groundwater samples from the uppermost aquifer that represent the quality of groundwater that has not been affected by a release from the unit.

- The monitoring of all Appendix I constituents, unless an alternative list of inorganic indicator parameters has been established by the Regional Board for use at the Unit.

- A monitoring frequency of semi-annually throughout the active life of the Unit, as well as the post-closure period.

C. Intra-well Monitoring Approach

As stated above, the groundwater quality at the Prima Deshecha Landfill is poor (*i.e.*, naturally occurring Chloride, Sulfate and Total Dissolved Solids at concentrations which exceed the Basin Plan water quality objectives) due to the marine deposits that comprise the bedrock at the site. The following table depicts the approximate background concentrations for monitoring well MW-G, for naturally occurring monitoring parameters:

Constituent	Background Concentration	Water Quality Objectives
Total Dissolved Solids	3602	500 mg/l
Chloride	909	250 mg/l
Sulfate	1183	250 mg/l

Background concentrations are average concentrations derived from the past 5 years of sampling at a semi-annual frequency.

Water Quality Objectives are from the Regional Board Basin Plan (1994).

Groundwater concentrations for a given naturally occurring constituent may vary significantly from one well to another, but may not be indicative of a release at the landfill. In order to distinguish between poor background water quality and an actual release from the site, the intra-well

analysis shall be used at all background and monitoring points to analyze each of the monitoring parameters listed in the WDRs. The intra-well analysis shall be used to compare the results of the current sampling data, of a given monitoring parameter, with the results of the previous 10 sampling events (*i.e.*, data from 5 years at semiannual monitoring frequency), for that well and that monitoring parameter. As newly acquired/validated data are added to the background data, the oldest data (annual data) shall be deleted from the background database. In this way, the background data shall be continuously updated and account for natural variations in site-specific conditions. Using this approach allows the discharger to establish and maintain site-specific background concentration levels, and the Regional Board to determine whether a measurably significant increase in the concentration of a particular constituent has occurred in a given well.

9. FINANCIAL ASSURANCES

The California Code of Regulations (CCR) Title 27, Chapter 6 requires that operators of solid waste facilities provide financial assurances to the State. The financial assurances shall be provided to the California Integrated Waste Management Board (CIWMB) or the Regional Board for: closure (CCR Title 27, § 22207), post-closure maintenance (CCR Title 27, § 22212), and for corrective actions associated with known or reasonably foreseeable releases from the waste management unit (CCR Title 27, § 22222). For your reference, all state regulatory citations cited in the tentative Order are provided in Attachment No. 5 to this agenda item.

A. Financial Assurances for Closure and Post-Closure

The County of Orange provided the CIWMB with an escrow agreement for closure to comply with requirements of CCR Title 27, § 22207 and a pledge of revenue agreement to comply with post-closure funding requirements of CCR Title 27, § 22212 (see Attachments 9 to the agenda item).

Upon recommendations from the State Water Board OCC counsel; the Regional Board staff included requirements that the County of Orange provide revised financial assurances. The revised financial assurances must allow the Regional Board direct access to funds that may be necessary to complete closure and post-closure tasks, in the event that the County of Orange is unable or unwilling to do so in the future.

B. Financial Assurances for Corrective Actions

To the knowledge of the Regional Board staff, the County of Orange has not provided or maintained financial assurances for corrective actions required for reasonably foreseeable releases from the Prima Deshecha Landfill. On October 1,

2003, the County of Orange sent a draft Escrow agreement to the CIWMB to initiate the process of providing financial assurances for corrective actions at the landfill. The County of Orange provided the Regional Board with a copy of that draft Escrow Agreement (in Attachment 10 to this agenda item).

From email communications between the Regional Board staff and the County of Orange (dated October 8, 2003), it appears that the CIWMB has not required the County to obtain financial assurances for corrective actions. Under those conditions, CCR Title 27 (§ 22222) states that the Regional Board must require the County to establish and irrevocable fund (or provide other means) pursuant to the CIWMB-promulgated sections of CCR Title 27 but with the Regional Board named as the beneficiary.

After consulting with the State Board OCC counsel; the Regional Board staff determined that the draft financial assurances for corrective action were inadequate. The draft financial assurances for corrective action do not provide the Regional Board with direct access to funds that may be necessary to complete corrective action tasks, in the event that the County of Orange is unable or unwilling to do so in the future.

Findings No. 30 establishes the minimum level of financial assurances required for the Prima Deshecha Landfill. The amounts of the required financial assurances were provided by the County of Orange in previous estimates for corrective action costs provided to April 2003 and the most recent JTD (dated July 2003).

In the absence of actions by the County of Orange to implement closure, post-closure maintenance or corrective actions; the Regional Board would require direct access to funding to fulfill its statutory role and effectively implement measures for the protection of water quality. Direct access to funding should be accomplished through financial assurances that are structured to allow the Regional Board to access funds, after a finding that the County of Orange is unable or unwilling to implement the required actions, to complete closure, post-closure maintenance or corrective actions for the protection of water quality.

Provision No. 5 of tentative Order R9-2003-0306 requires the County to comply with the financial assurance requirements of CCR Title 27 and provide financial assurances that are acceptable to the Regional Board. The County would be required to provide acceptable Financial Assurances for closure, post-closure, and corrective actions within a period of 1 year from the date the Regional Board adopts tentative Order R9-2003-0306.

11. STAFF RECOMMENDATIONS

The alternative liner and LCRS design meet the performance requirements established in 40 CFR §258.40, CCR Title 27 §20080(b), §20330 and 20340, and

SWRCB Resolution No. 93-62. The following constitutes the rationale behind this conclusion.

The underlying bedrock at the Prima Deshecha landfill is a thick section of claystones from the Capistrano Formation. These claystones have low permeabilities (1×10^{-6} to 1×10^{-8}) which provide natural conditions similar to the prescriptive standard of a 24" clay layer at the base of the liner system.

The HELP3 leachate leakage model was run using weather data from 1974 to 1978. This interval includes two "dry" years, two "average" precipitation years, and one "wet" year. The model results indicate that the proposed alternative liner design is effective in limiting the leachate leakage to less than 0.1% of precipitation under a wide range of climatic conditions.

The Environmental Protection Agency's Multimedia Exposure Assessment Model (MULTIMED) was used to simulate the attenuation and dilution of contaminants leaching from a landfill through the saturated and unsaturated zones. According to EPA-recommended criteria, if the dilution-attenuation factor is equal to or greater than 100, the design is acceptable. The model results yielded values between 598 and 59,880.

The Regional Board staff recommends adoption of tentative Order R9-2003-0306 and Monitoring and Reporting Program No. R9-2003-0306.